1900MNRAS..60..173.

MONTHLY NOTICES

OF THE

ROYAL ASTRONOMICAL SOCIETY.

VOL. LX. JANUARY 12, 1900. No. 3

Professor G. H. DARWIN, M.A., LL.D., PRESIDENT, in the Chair.

Professor R. N. Apte, M.A., LL.B., Rajaram College, Kolhapur, India;
Maurice Harvey Clarke, Lieut. R.N.R., F.R.G.S, Coleswood, Harpenden, Herts;
Rev. P. W. Fairclough, Kaiapoi, New Zealand;
Umes Chandra Ghosh, M.A., Muir Central College, Allahabad, India;
Richard Kilvington Hattersley, 4 Church Terrace, Blackheath, S.E.; and
Howard Payn, F.R.G.S., 21 Hyde Park Place, W.,

were balloted for and duly elected Fellows of the Society.

Sixty-six presents were announced as having been received since the last meeting, including amongst others:—

L. Ambronn, Handbuch der Astronomischen Instrumentenkunde, presented by the author; Nice, Observatoire, Annales, Tome i., presented by M. Bischoffsheim; Paris, Observatoire, Carte Photographique du Ciel, Zone 24 (19 charts), presented by the Observatory; Isaac Roberts, Photographs of stars, star clusters and nebulæ, vol. ii., presented by the author; S. Newcomb, Tables of *Uranus* and *Neptune*, presented by the Office of the American Ephemeris; Photograph of the nebula H V. 14 *Cygni*, presented by Mr. Wilson; Photograph of the nebula in *Orion*, presented by the Astronomer Royal.

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The Determination of Selenographic Positions and the Measurement of Lunar Photographs. By S. A. Saunder, M.A..

The object of this paper is to call attention to the great uncertainty that attaches to our knowledge of the positions of lunar formations, and to suggest means by which these positions may be determined more accurately than has yet been accomplished.

§1. *Errors in Existing Measures.*

Schmidt, in the introduction to his *Charte der Gebirge des Mondes*, gives a list of 157 formations whose positions have been determined as "points of the first order," almost entirely by Lohrmann (76), Mädler (89), and Neison (33). If to these we add the positions of Biot, found by Mädler; Horrocks, Halley, and Hipparchus L, by Neison; with Triesnecker B, by Pritchard, we have, so far as I know, all the points whose positions have been found by methods making any pretension to accuracy; and of these very little reliance can be placed on those which depend on not more than two or three measures. The uncertainty attaching to a single measure was estimated by Mädler* to be about 8″ or 9″ (geocentric), which would correspond to half a degree of selenographic longitude or latitude near the centre of the disc, and to a still greater amount as the limb is approached. The probable error derived from the measures themselves, *after rejecting the unfavourable points*, is stated by Neison† to be 7″·2. Rather less than half the whole number given by Schmidt depend upon 10 or more measures, whether by the same or by different observers.

Eleven points were measured five times at least by both Lohrmann and Mädler. The average difference in selenographic latitude is 17′, and in longitude 10′, corresponding respectively to 4″·4 and 2″·3 geocentric. It may also be noted that in nine cases Lohrmann's position is further from the equator than Mädler's, and the mean distance of his positions from the equator is greater than Mädler's by 12′ of selenographic latitude, or 3″·4 as seen from the Earth. The differences in longitude so far as these points are concerned do not appear to be systematic.

§ 2. *Possible Cause of Systematic Error.*

The method adopted by Lohrmann, Mädler, and Neison was that suggested by Encke, in which the position of a point is determined by measuring its distance from either the N. or S.

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* *Der Mond*, § 39.

† *Quarterly Journal of Science*, April 1875.

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